

Client Subsystem Design Review

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Agenda



- **Subsystem Overview**
- **Incremental Track Snapshot**
- **CLS Design Issues**
- **Prototype Status**
- **Client Flavors During Release B Operations**



Guidelines for Panel Preparation

DID 305 Overview Summary

RTM Baseline (3/1/96)

CLS DID 305 (3/96)

EP Strategic Plan (3/96)

EP7 Objectives Review (2/16/96)

EP7 Design Review (3/20/96)

PW2 Results Report (3/96)

Web postings (EP, Proto, Client, SO)

- **[http:// ecsinfo.hitc.com](http://ecsinfo.hitc.com)**

- **Prototypes:**
sec6.html

[http:// ecsinfo.hitc.com/sec6/](http://ecsinfo.hitc.com/sec6/)

- **Evaluation Packages:**
eps.html

[http:// ecsinfo.hitc.com/sec6/](http://ecsinfo.hitc.com/sec6/)

Agenda



Subsystem Overview

Incremental Track Snapshot

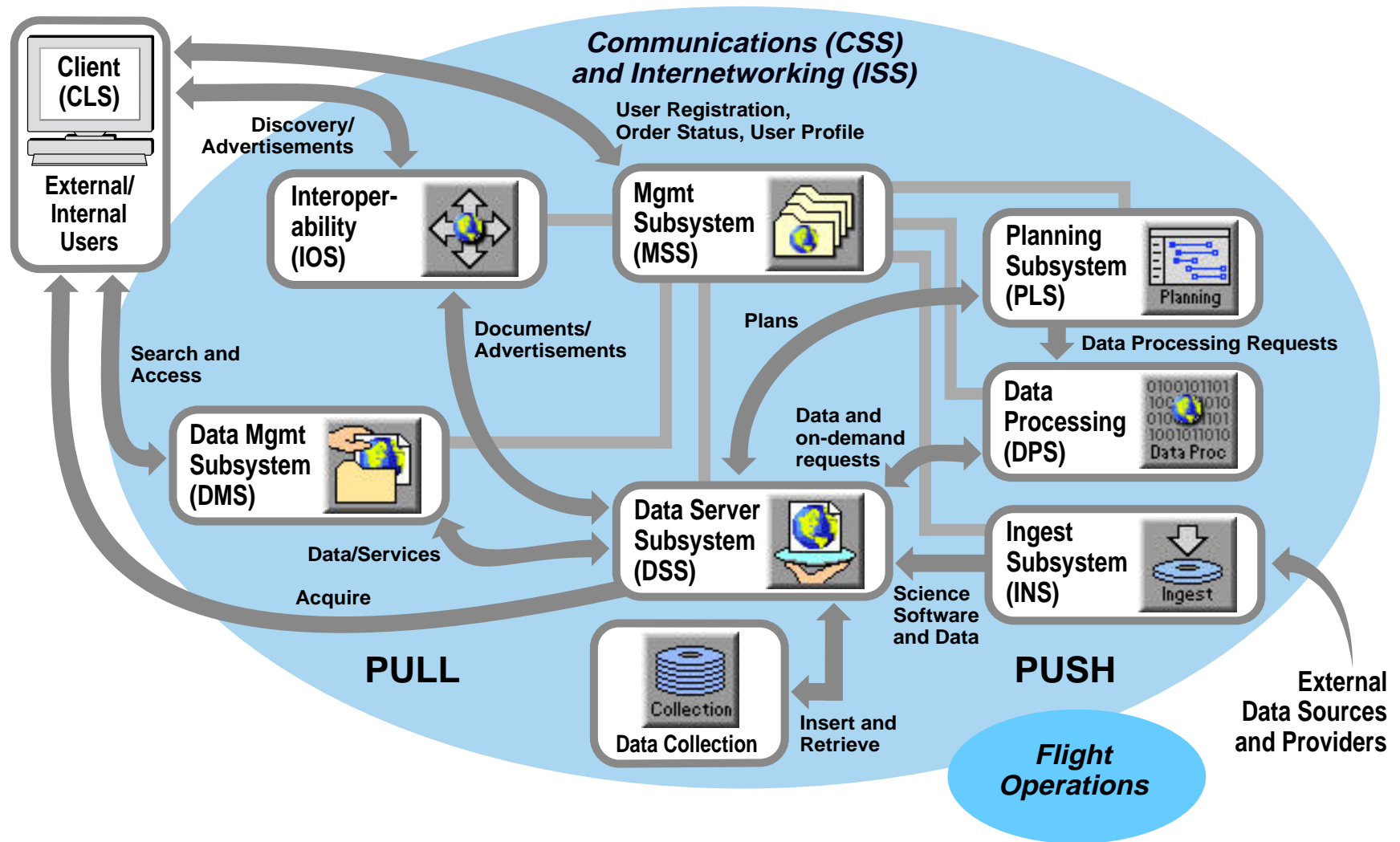
CLS Design Issues

Prototype Status

Client Flavors During Release B Operations

- ECS Context
- CLS Context
- CDR Demos
- User Interfaces
- CSCI Driving Requirements
- CSCI Software Design
- Object Model
- COTS selections
- IDR & workshop issues
- Design changes from IDR

ECS Context



CLS Context



Collection of components through which users access the services and data available in ECS and other systems interoperable with ECS.

Includes services needed to interface an application (e.g., a science algorithm) with ECS, e.g., for data access or to make use of ECS provided toolkits.

Accessed services can be remote (i.e., via wide-area network to other sites) and local (e.g., to a database manager at the user's site).

Client subsystem components fall into one of the following general categories:

- **An intuitive desktop manager, which manages desktop objects (files) in the user's local file space, and which represent applications and data in the domain of the client.**
- **Application programs accessible through graphically oriented user interfaces which implement the range of functionality available in the client.**



CLS Context (cont.)

The Client subsystem for Release B is composed of two CSCIs:

- **Desktop CSCI (DSKT)** is a software component. It provides a standardized GUI framework for the user's interaction with ECS software and data.
- **Workbench CSCI (WKBCH)** is a software component. It includes the initial set of ECS provided applications and libraries that provide access to ECS data and services.
- There is no hardware CI for the Client Subsystem

Client science user interfaces will be implemented as:

- **X/Motif GUIs**
- **Web/HTML Tools**
- **Web/Java Earth Science Tool (JEST)** - replacement for the ChUI requirement

The client subsystem gets installed on the science user's workstation.

It also gets installed on the appropriate hardware to support operations personnel, but these workstations are not dedicated solely to the client subsystem.

CLS CDR Demos



ESST



Earth Science
Search Tool

JEST



Java Earth
Science Tool

Overall familiarization with each tool layout and current capabilities

Creating a search through selection of:

- **Discrete Attributes**
- **Temporal Attributes**
- **Spatial Attributes**

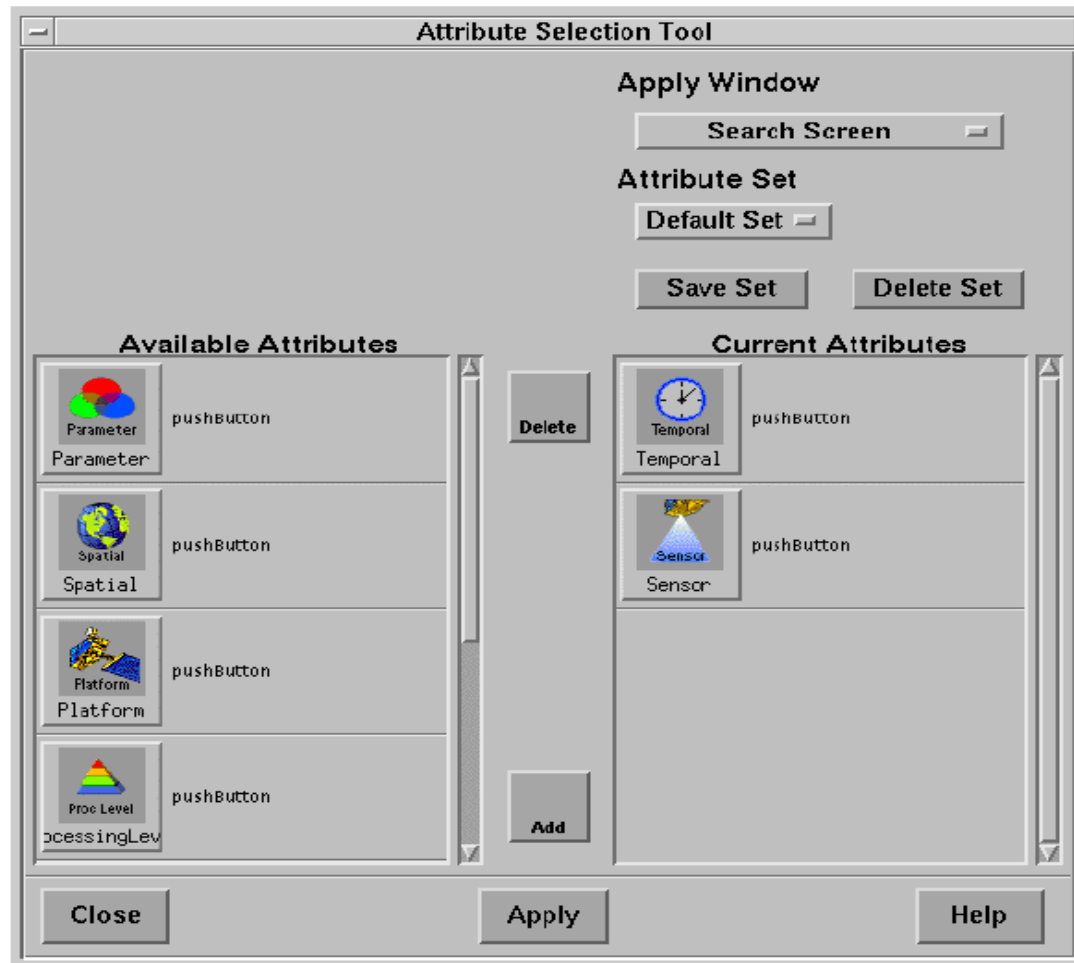
Evaluation of search results and identification of collection/granule specific services

Search resubmission through revision of constraints (e.g., temporal selection)

ESST



Demo



1

Access the Attribute Selection Tool from the tool bar.

The Attribute Selection Tool contains a number of attributes which you may use.

Using the attributes available through the Attribute Toolbar, construct a search for the desired attributes.

3

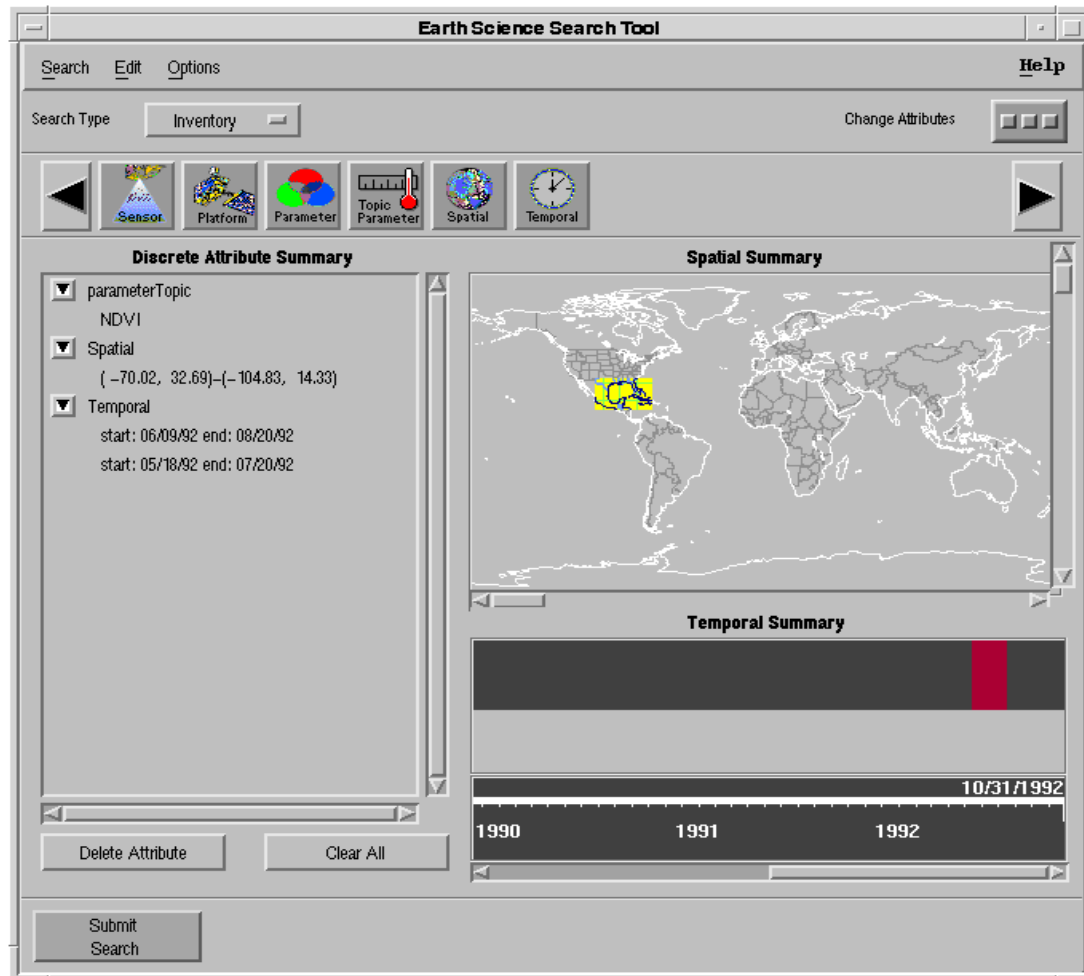
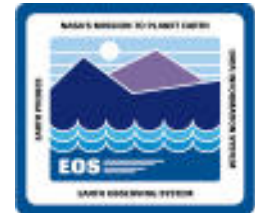
Using the attributes available through the Attribute Toolbar, construct another search while the first search is being processed. Use the spatial and temporal attribute tools to enter the geographic area(s) and time period(s) for which you are interested. When you have finished constructing your search, submit the search to ECS for processing.

ESST



Earth Science
Search Tool

Demo



2

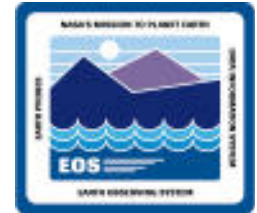
Use the spatial and temporal attribute tools to enter the geographic area(s) and time period(s) for which you are interested.

When you have finished constructing your search, submit the search to ECS for processing.

ESST



Demo



Search Results

Results Data Mark Options Filter Help

Collections and Granules

Select for Order

Collection 1

Collection 2

Attributes

Sensor

Spatial

Temporal

platform 1

platform 1

lat, long - lat

lat, long - lat

start - end

start - end

Services

Viewing

Browse

Preview Order

4

The system has processed your query and the results have been returned. Examine the Results Lists. Open up the collection-level information to reveal the list of granules contained within each data collection. Some of the granules contain browse images, select one or two from each results list to view.

5

EOSView

Examine the browse image(s) you have selected. Zoom and panning controls are available for you to view the image in more detail. When you have finished viewing the image(s) return to the Results List windows.

ESST



Demo



Product Request Tool

Order Data Mark Options Filter Address Help

Collections and Granules		Attributes		Services
<input type="checkbox"/> Select for Order <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Name Collection 1 C1 granule 1 C1 granule 2	 Spatial lat, long - lat, lat, long - lat, lat, long - lat,	 Temporal start - end start - end start - end	Viewing Browse [Empty list box]

Collection & Granule Levels

Summary

Total Price: [Text Box] Mailing Address: [Text Box]

Media Type: [Text Box]

Media Format: [Text Box]

Submit Order

6

After reviewing the browse image(s) and data collection/granule metadata, you select some data to order.

When you have finished making your selections on each search results list, preview your order.

Fill in the order form information and submit your orders.

JEST

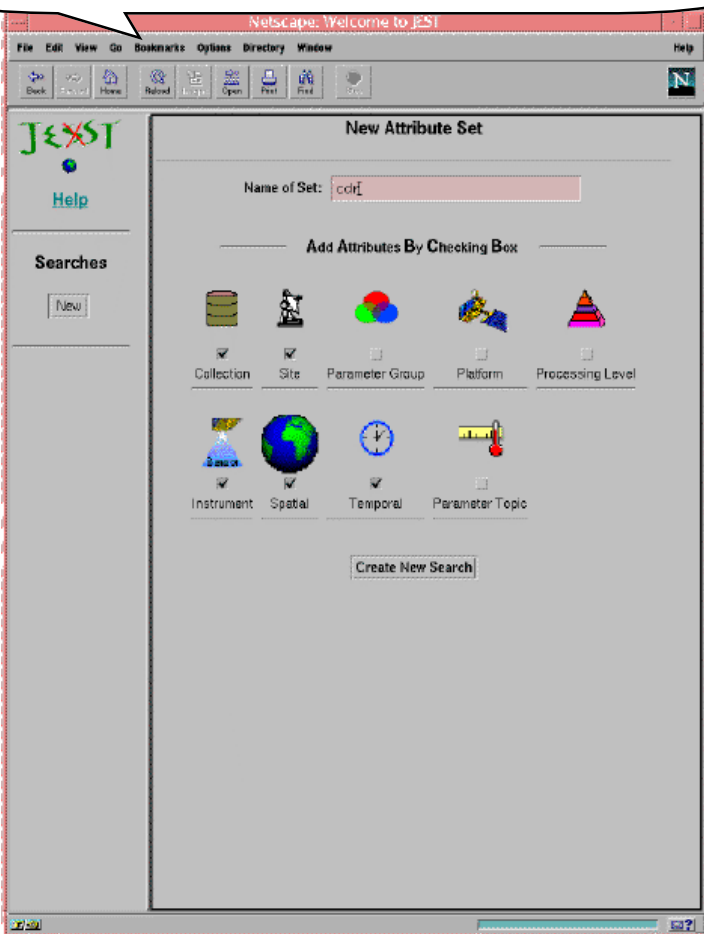


Demo



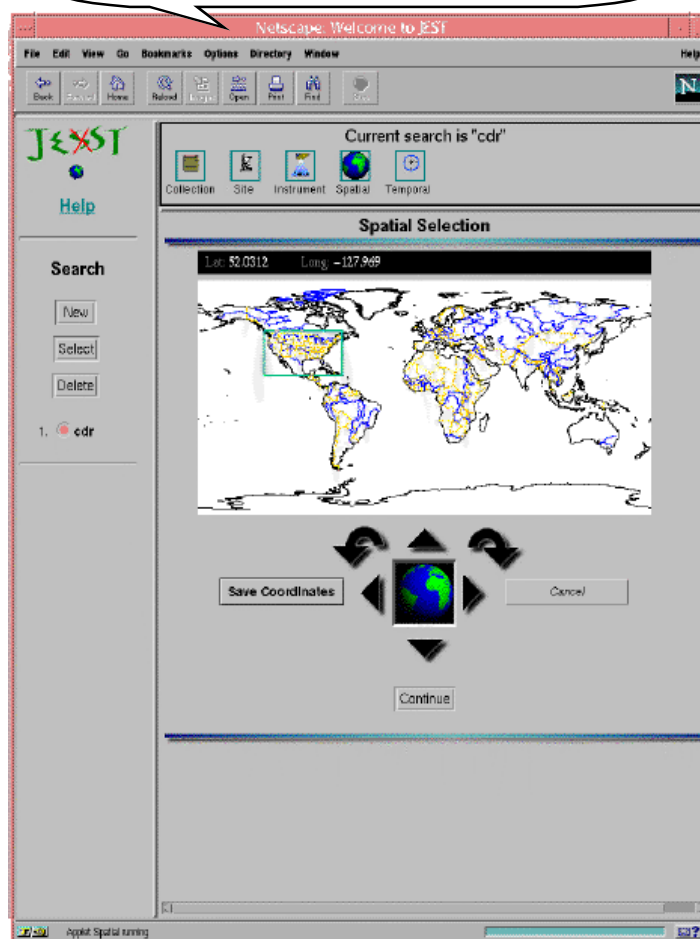
1

Create a new search by selecting the desired attributes from the set of available attributes. Give the set a name and save it.



2

Select the Spatial attribute icon, include it in the attribute set and enter a spatial selection.



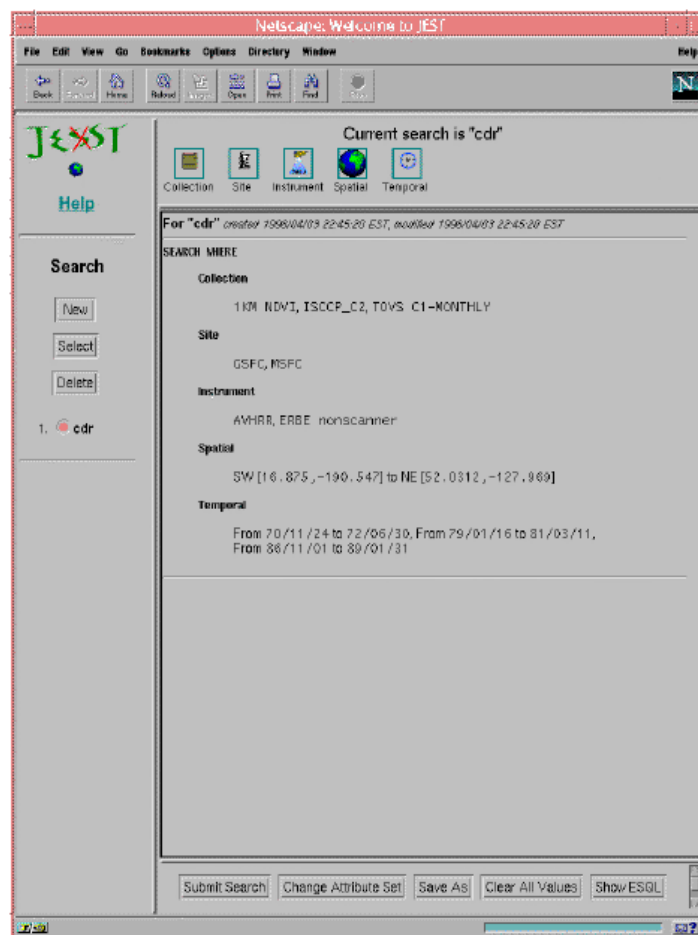
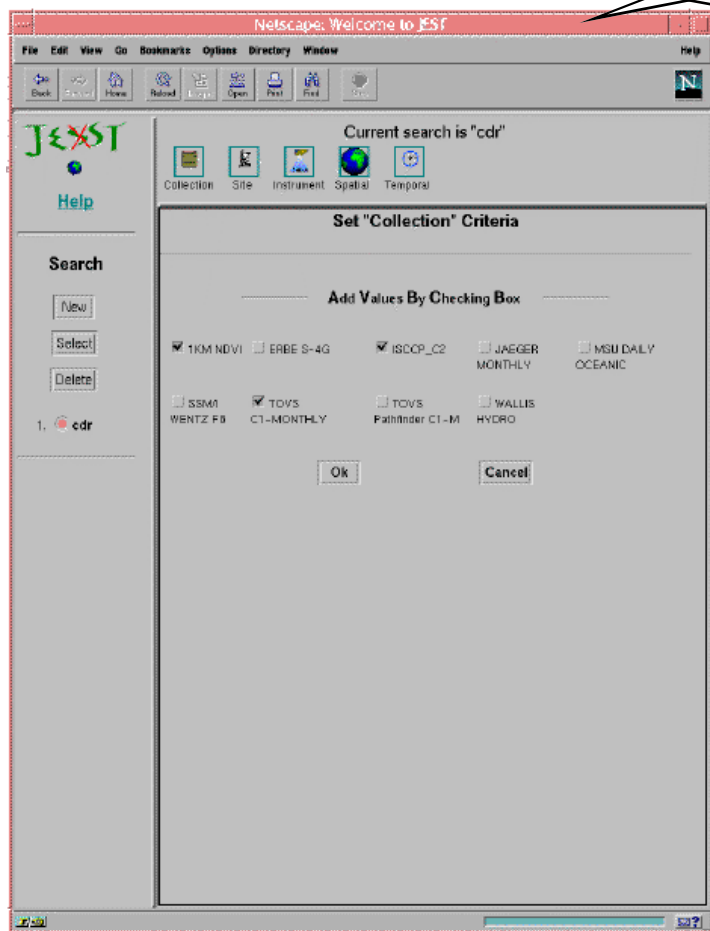
JEST



Demo

3

Construct a search using the attributes saved in the previous step. When you have constructed the search, submit your search.



JEST



Demo



4

Review your search results. There are far too many hits than you were expecting. You realize that you forgot to select a time range for your search.

Search Results for "cdr"

Services	Collection	Granule count	Locality Type	Processing Level	Start Date	End Date
<input type="checkbox"/>	1KM NDVI	3	10-Day composite	3	1-Mar-92	1-Dec-92
<input type="checkbox"/>	ESRES-4G	5	10-Day composite	3	1-Mar-92	1-Dec-92
<input type="checkbox"/>	JRCF-C2	2	monthly averages	3	1-Mar-92	1-Dec-92
<input type="checkbox"/>	TONS CI-DAILY	4	global	3	1-Mar-92	1-Dec-92
<input type="checkbox"/>	SSM/I PRECIP	6	coverage	3	1-Mar-92	1-Dec-92
<input type="checkbox"/>	TONS CI-Monthly	4	coverage	3	1-Mar-92	1-Dec-92
<input type="checkbox"/>	TONS CI-PENTAD	4	coverage	3	1-Mar-92	1-Dec-92
<input type="checkbox"/>	MSU DAILY OCEANIC	4	coverage	3	1-Mar-92	1-Dec-92
<input type="checkbox"/>	WALLIS HYDRO	4	coverage	3	1-Mar-92	1-Dec-92
<input type="checkbox"/>	LARGER MONTHLY	6	coverage	3	1-Mar-92	1-Dec-92

Granules for 1KM NDVI

Services	Granule	Processing Level	Start Date	End Date
<input type="checkbox"/>	granule 1	3	1-Mar-92	1-Dec-92
<input type="checkbox"/>	granule 2	3	1-Mar-92	1-Dec-92
<input type="checkbox"/>	granule 3	3	1-Mar-92	1-Dec-92

5

Refine your search using the Temporal tool. Select a previously saved search and modify the list of attributes. Be sure to select the Temporal attribute icon and include it in the attribute set. Save the new search attribute list.

Current search is "cdr"

Temporal Selection

DAAC Site: ☐ ASF ☐ EDC ☒ GSFC ☐ JPL ☐ LaRC ☒ NSIC ☐ NSIDC ☐ ORNL

Start Date: TV 85 MM 11 DD 2

End Date: TV 85 MM 4 DD 1

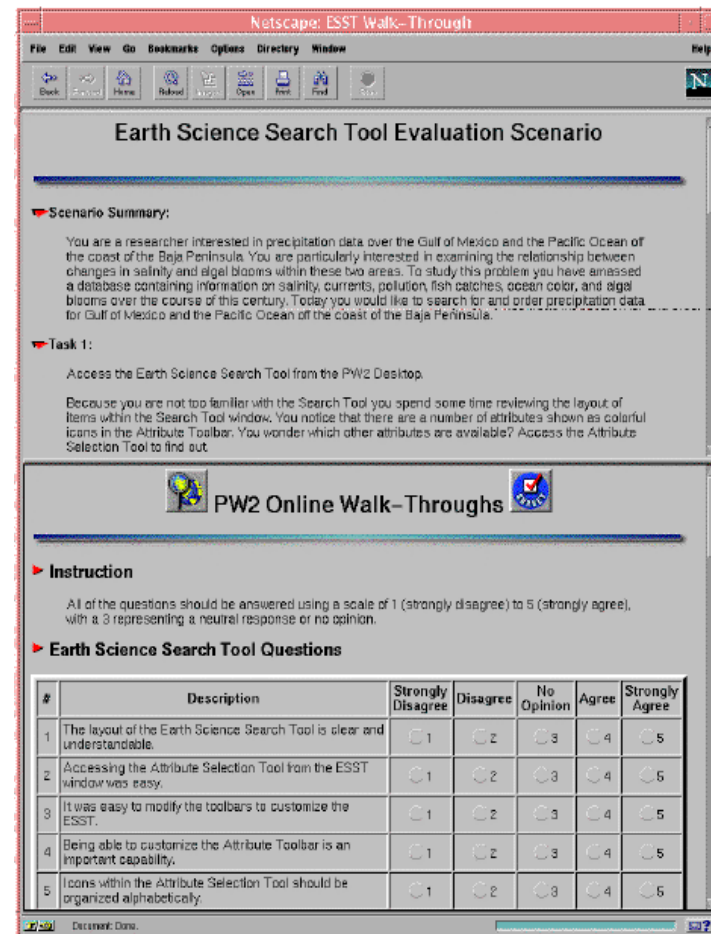
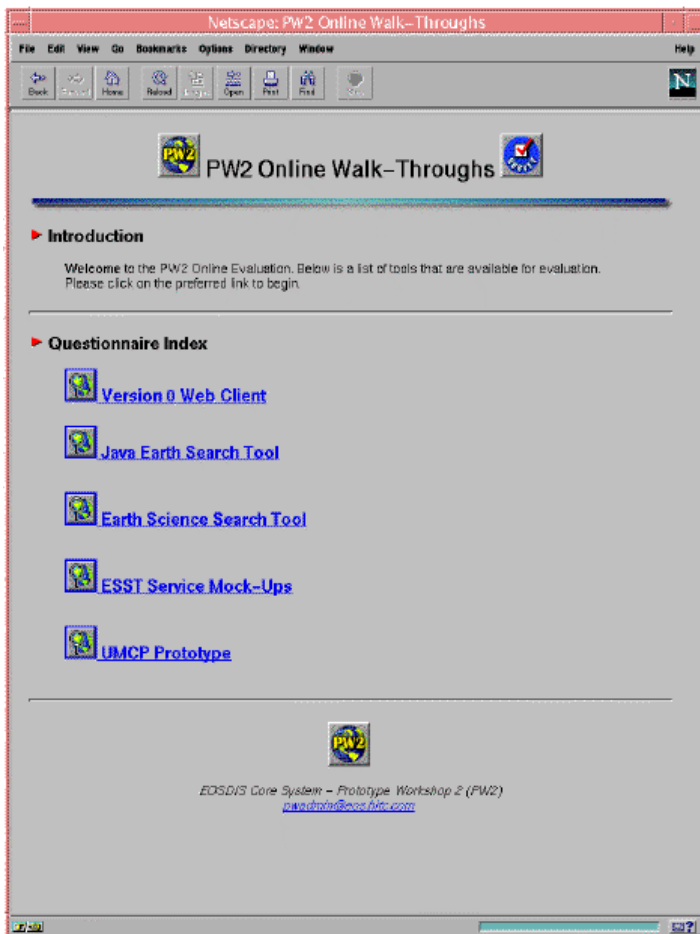
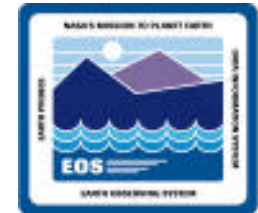
Temporal Range List

70/11/24 - 72/06/30
79/01/16 - 81/03/11

6

Submit your search. When the results are returned, examine the results and select items you wish to order. Submit your order.

User Interface - HTML/Web Comment Survey Tool



User Interface - HTML/Web Data Dictionary Tool



Netscape: ECS Data Dictionary

File Edit View Go Bookmarks Options Directory Window Help

Back Forward Home Reload Links Open Print Find Stop

ECS Data Dictionary

► Introduction

Welcome to the ECS EP6 Data Dictionary Service. You may use the [INDEX](#) to scroll through the ECS Data Dictionary, or use the [SEARCH FORM](#) for keyword search.

► ECS Data Dictionary Search Form

Please enter your search keyword(s) below. Type as many relevant keywords, separated by space, as possible. It will help to uniquely identify what you're looking for. For more information on how to construct a search query, please consult [search hints](#).

By default, the search will be performed on **ALL** categories. If you'd like to modify the default category and/or search options, please use the [full search form](#).

Search for:

Click to or

► ECS Data Dictionary Index

This index is organized by category. The ALL category contains the complete list of items in the ECS Data Dictionary holding. To view the contents of each category select the appropriate heading below.

- [ALL](#)
- [Acronym](#)
- [Data Collection](#)
- [Glossary](#)
- [Instrument](#)
- [Parameter Group](#)
- [Parameter Topic](#)
- [Platform](#)
- [Site](#)

Netscape: Data Collection Item Information

File Edit View Go Bookmarks Options Directory Window Help

Back Forward Home Reload Links Open Print Find Stop

Data Collection Item Information

► North America, 1 km AVHRR 10-day composite NDVI -

Full Description:

Characteristics:

Collection ID		Contact ID	
Temporal Range Type	Continuous	Period Duration	
Start Date Time	1-Apr-82 0000Z		
End Date Time	1-Oct-82 2359Z		
Locality Name	North America	Locality Type	10-Day composite
North Lat	80.000000	East Lon	-50.000000
West Lon	-180.000000	South Lat	0.000000
Processing Level	3		
Collection UR			

► Cross Reference(s):

Site(s):

[GSFC](#)

Parameter Topic(s):

[NDVI](#)

Instrument(s):

[AVHRR](#)

Parameter Group(s):

[Biogeochemical Processes](#)
[Land Processes](#)

Platform(s):

[NOAA-10](#)
[NOAA-12](#)
[NOAA-14](#)
[NOAA-9](#)


User Interface - HTML/Web User Registration Tool



Netscape: ECS User Registration

File Edit View Go Bookmarks Options Directory Window Help

Back Forward Home Reload Links Open Print Find Stop

 ECS User Registration

► Introduction

Welcome to the ECS EP6 User Registration Service. To obtain privileges beyond those of a Guest user and to set up your own ECS account, you must complete the ECS registration form below. When you have finished, click on the **Submit** button at the end of this page to register. Your registration information will be sent to ECS for verification and processing. For security purposes, you will be informed of your login name and password by U.S. Mail.

► Required Information

Only first name, last name, and e-mail address will be used as keys to create an account. But if you complete the entire registration form, this will speed up the registration process. If you have any questions, please consult the [on-line Help](#) system.

► Index

- [Applicant's Information](#)
- [Mailing Address](#)
- [Submit button at the end of the form](#)

► Applicant's Information

Title	<input type="text"/>	First Name ✓	<input type="text"/>
Middle Initial	<input type="text"/>	Last Name ✓	<input type="text"/>
Organization	<input type="text"/>	Project	<input type="text"/>
E-mail Address ✓	<input type="text"/>		
Affiliation	<input type="radio"/> Government <input type="radio"/> University <input type="radio"/> Commercial <input type="radio"/> K-12 <input checked="" type="radio"/> Other <input type="text"/>		

Netscape: ECS User Registration

File Edit View Go Bookmarks Options Directory Window Help

Back Forward Home Reload Links Open Print Find Stop







► Applicant's Information

Title	<input type="text"/>	First Name ✓	<input type="text"/>
Middle Initial	<input type="text"/>	Last Name ✓	<input type="text"/>
Organization	<input type="text"/>	Project	<input type="text"/>
E-mail Address ✓	<input type="text"/>		
Affiliation	<input type="radio"/> Government <input type="radio"/> University <input type="radio"/> Commercial <input type="radio"/> K-12 <input checked="" type="radio"/> Other <input type="text"/>		

► Mailing Address

Address	<input type="text"/>		
City	<input type="text"/>	State/Province	<input type="text"/>
ZIP/Postal Code	<input type="text"/>	Country	<input type="text"/>
Phone	<input type="text"/>	Fax	<input type="text"/>

When you have finished, press to register,
or press to display previous information.

EOSDIS Core System - Evaluation Package 6 (EP6)
eps@eos.nasa.gov

CSCI Driving Requirements

(3/1/96 RTM Baseline)



RBRs

	RBRs
IMS	131
EOSD	5
DADS	4
ASTER	3
SDPS	3
PGS	1
V0	1
Total:	148

L4s

General Functional Description	Rel-A*	Rel-B*	New Rel-B
DESKT	19	45	Features
WKBCH -			
Search	18	36	
Order/Subscriptions/DAR/DPR	8	59	
Browse	17	23	
Guide	10	5	
Advertiseing/Service Installations	9	0	
DDICT	2	8	
DST	1	2	
Comment/Survey/Feedback	4	4	
Training/Help/Problem Reports	1	11	NEW
Processing/Schedules/Status Reports	0	22	NEW
Session Mgt	0	33	NEW
User Registration and Profile	12	8	
Dumb Terminal (TBR by Web I/F)	0	13	NEW
APIs for customized DAAC clients	0	5	NEW
Mode Management	0	20	NEW
General	23	15	
Totals	124	309	

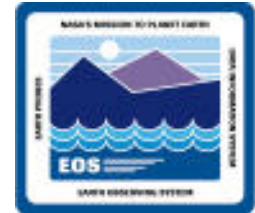
* Approximate Counts

Note: Release A CLS L4s represent a subset of the required Release B functionality.

Client Functionality

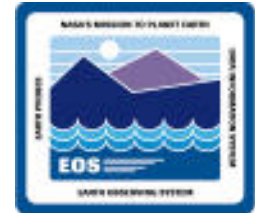


Tool	Functionality	Implementation Type	Implemented By
		(X/Motif HTML Java COTS)	(EP7 PW3 TRR-B)
Desktop	Customizable Icon/Hierarchical File Display	X/Motif	TRR-B
	Advertisement installation	X/Motif	TRR-B
	File management capabilities	X/Motif	TRR-B
ESST			
Server Interfaces	Inventory	X/Motif Java	TRR-B TRR-B
	Standard	X/Motif Java	EP7 EP7
	Coincident	X/Motif	TRR-B
	Incremental	X/Motif Java	TRR-B TRR-B
Search Features	Advertisements	X/Motif Java	EP7 PW3
	Guide	X/Motif Java	EP7 PW3
	Data Dictionary	X/Motif Java	EP7 PW3
	Keyword aliasing	X/Motif	TRR-B
	ESQL server interface	X/Motif Java	TRR-B TRR-B
	Multiple concurrent searches	X/Motif Java	EP7 EP7
	Metadata exception display	X/Motif	EP7
	Search suspension, cancellation	X/Motif Java	EP7 TRR-B
	Valid value processing	X/Motif Java	EP7 TRR-B
	Search on collection specific attributes	X/Motif	EP7
	Server location transparency to user (one stop shopping)	X/Motif Java	EP7 EP7
	Save/Load searches to/from desktop	X/Motif Java	EP7 EP7
	Customizable, iconic attribute display	X/Motif Java	EP7 PW3
	Timeline for temporal selections	X/Motif Java	EP7 EP7
	Selectable events	X/Motif	EP7
	Multiple ranges	X/Motif Java	EP7 EP7
	Cyclic selections	X/Motif Java	EP7 PW3
	Zoom-in/out	X/Motif Java	EP7 PW3
	Map for spatial selections	X/Motif Java	EP7 EP7
	Multiple figures (point, polygon, circle)	X/Motif Java	EP7 PW3
	Pan and zoom-in/out	X/Motif Java	EP7 EP7
	Multiple projections	X/Motif Java	EP7 TRR-B
	Multiple region selection	X/Motif Java	EP7 TRR-B
	Predefined selectable regions	X/Motif Java	EP7 TRR-B

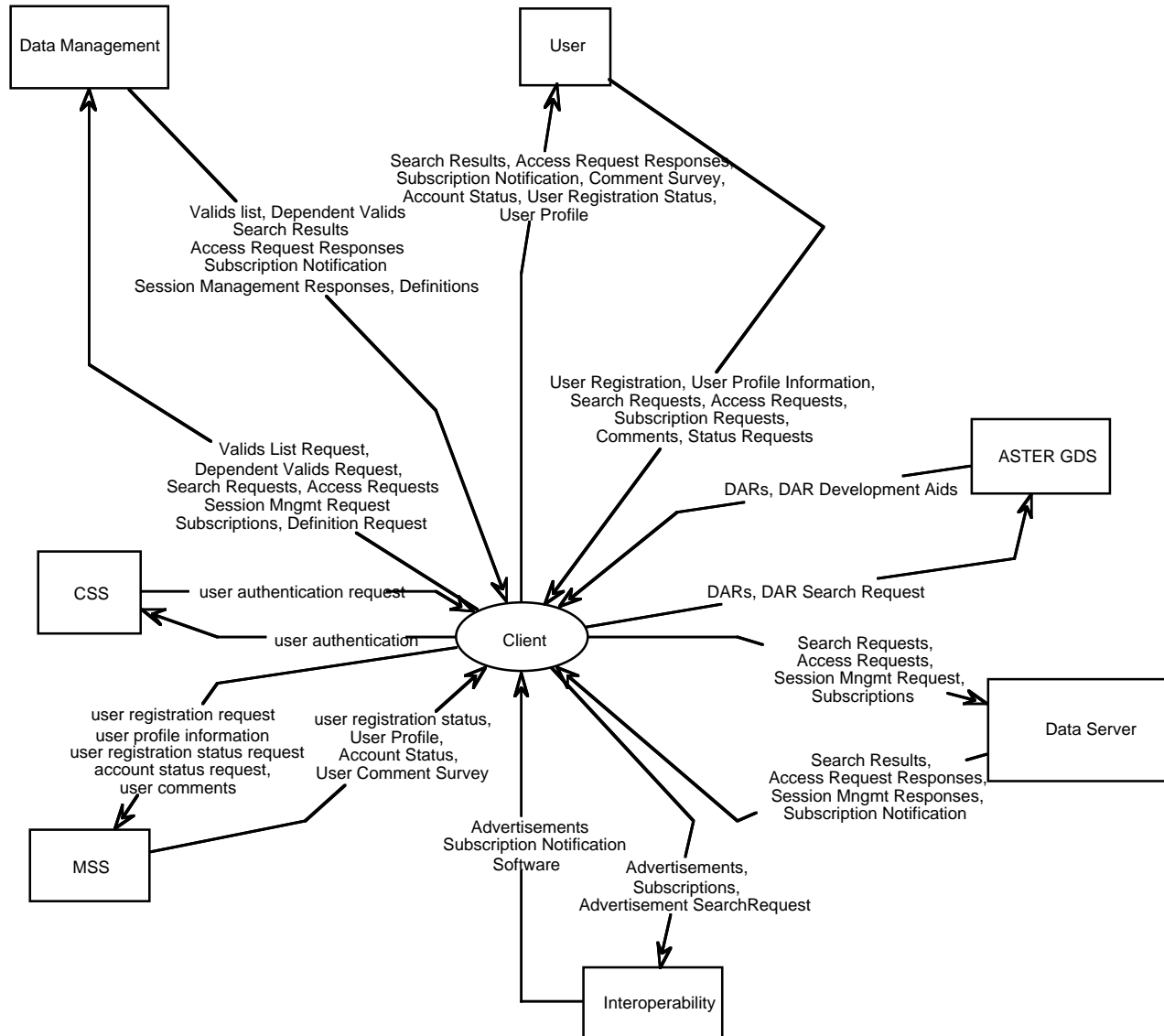


Client Functionality (cont.)

Tool	Functionality	Implementation Type (X/Motif HTML Java COTS)	Implemented By (EP7 PW3 TRR-B)
ESST (Cont.)			
Result Processing Features	Customizable, iconic attribute display	X/Motif Java	EP7 PW3
	Customizable granule reaggregation	X/Motif Java	EP7 TRR-B
	Save/Load results to/from desktop	X/Motif Java	EP7 EP7
	Viewing services	X/Motif Java	TRR-B TRR-B
	<i>Granule detail</i>	X/Motif Java	TRR-B PW3
	<i>Granule coverage (temporal/spatial)</i>	X/Motif Java	EP7 TRR-B
	<i>Browse (EOSView)</i>	X/Motif Java	EP7 PW3
	Pre-order data type services	X/Motif Java	TRR-B TRR-B
	<i>Subsetting</i>	X/Motif Java	TRR-B TRR-B
	<i>Subsampling</i>	X/Motif	TRR-B
	<i>Geographic Transformations</i>	X/Motif	TRR-B
	<i>Data Processing Requests (DPRs)</i>	X/Motif	TRR-B
	Order services	X/Motif	TRR-B
	<i>Media type</i>	X/Motif Java	EP7 TRR-B
	<i>Media format</i>	X/Motif Java	TRR-B TRR-B
	<i>Order History & Acct Balance</i>	X/Motif Java	TRR-B TRR-B
Subscription Tool		X/Motif	TRR-B
Data Dictionary Tool		HTML	EP7
User Registration/Profile Tool		HTML	PW3
User Preferences Tool		X/Motif	TRR-B
Comment/Survey Tool		HTML	EP7
Document Search Tool		HTML	EP7
Logging Tool		X/Motif	TRR-B
Session Management Tool		X/Motif Java	TRR-B TRR-B
DAR Tool		X/Motif	TRR-B
Hypertext Viewer	Netscape (HTML 3.0 Compatible)	COTS	TRR-B
Hypertext Authoring Tool	TBD	COTS	TRR-B
E-mailer Tool	Z-mail	COTS	TRR-B
Newsreader Tool	x r n	COTS	TRR-B
Tool Integration		n/a	TRR-B



CSCI Software Architecture Overview



Key Mechanisms Used by CLS



A key mechanism illustrates an architectural function required by all applications.

CLS

- DESKT
- ESST/JEST
- SMT
- Web Tools

- DESKT
- ESST/JEST

- DESKT
- ESST/JEST

- DESKT
- ESST/JEST
- Web Tools

- DESKT
- Subscrip. Capability

- ESST/JEST
- SMT

- Process Framework (PF)

Mechanism for incorporating infrastructures required to support distributed computing in the ECS environment

Provides process initialization and life cycle support

Sets parameters for naming/directory/security services

Interfaces to mode management, event logging, synchronous message passing

- Distributed Object Framework (DOF)

Mechanism for creating remote objects and invoking remote methods

Provides naming, security, threads, time, and RPC services

- Universal Reference (UR)

Mechanism for referencing system wide data and service objects

Provides externalize and internalize services for objects

- Server Request Framework (SRF)

Mechanism for constructing servers and client/server APIs

Provides asynchronous request processing service

- Subscription Server (SS)

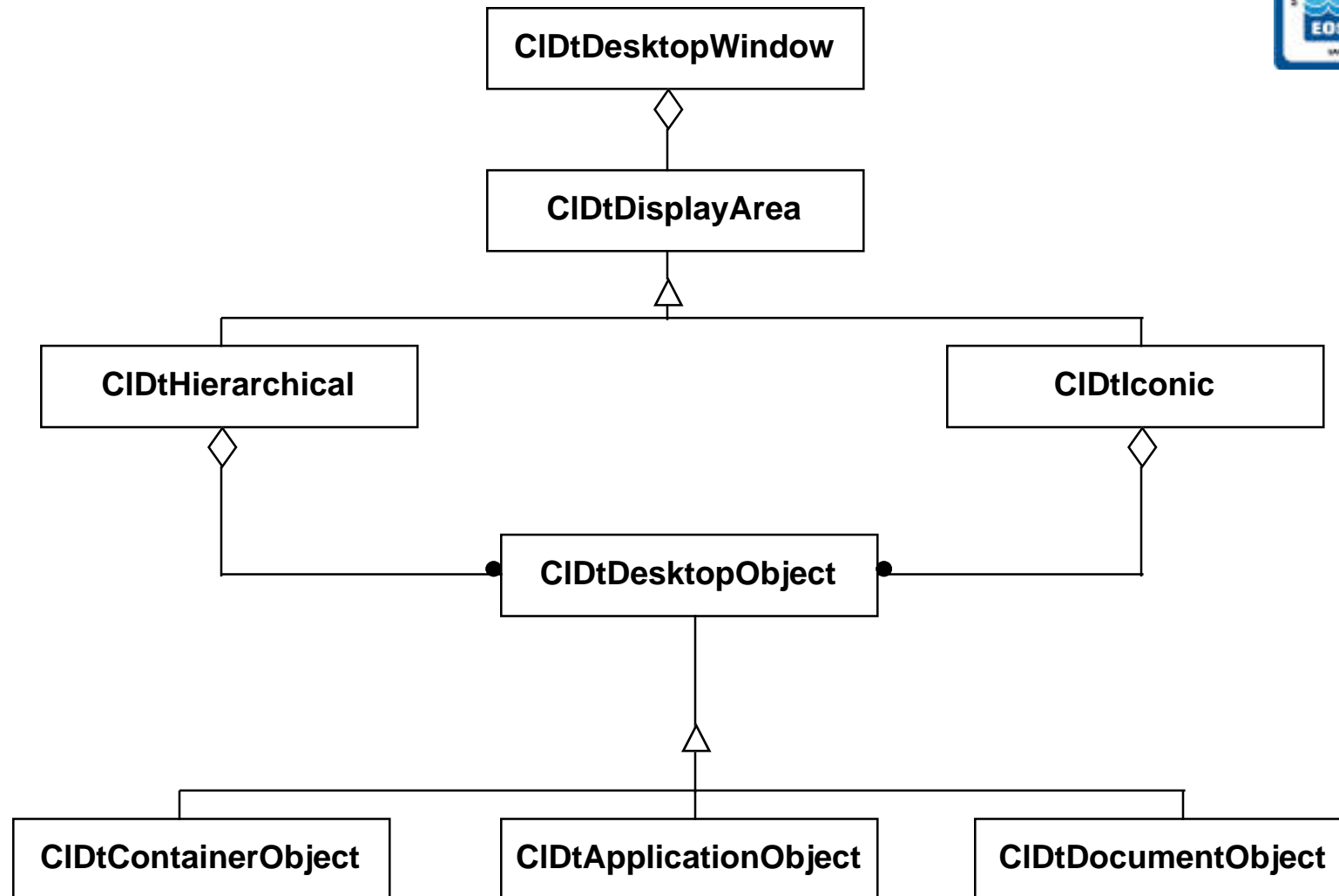
Mechanism for implementing event-action model based on a producer/consumer paradigm

Provides subscription and event/action processing services

- Request Tracking

Provides near real-time end-to-end status of selected requests (e.g., user orders, ingest, and system backups)

Provides access to resource cost information over the life of a request



Note: Specific attributes and operations for each of these classes are provided in DID 305-CD-021-002, Section 4.0



COTS Selections (CLS Specific)

COTS Inherited from Release A

- SUN Solaris 2.4
- HP-UX 9.0.5
- SGI IRIX 5.3 (32 bit), 6.1 (64 bit)
- IBM-AIX 3.2.5

New COTS in Release B

- HP-UX 10.0.1
- DEC-UNIX 4.0
- SGI IRIX 5.4 (32 bit), 6.2 (64 bit)
- IBM-AIX 4.1

Web / Java Status

- Prototypes on-going (EWCIP, JEST, etc.) - most recent versions will be designated as baseline (details provided in last section of this presentation)



IDR and Workshop Issues

IDR

- **Issue**
 - **Post EP7 Client Incremental Track Design Workshop**
- **Resolution**
 - **Upon completion of the remaining design and analyses tasks, CLS will hold a Design Workshop (planned for September 17, 1996).**

General Issues

- **SDPS Issues Database**
- **Others listed as topics for the upcoming Client Design Working Group (CDWG)**
- **CDWG will utilize input from the following workshops:**
 - **PW2**
 - **EP6 and EP7 feedback**
 - **GUI Workshop**
 - **Ops Workshop**
- **Will be addressed individually through tiger teams appointed by the CDWG**



Design Changes from IDR

DID 305 (3/96 Version) represents updates to the:

- **DESKT CSCI (most recent snapshot from Release A Phase 2)**
- **Editorial changes to the WKBCH CSCI Tool descriptions**

No functional, architectural, or interface changes

Web Client implementation as replacement to generic ChUI

Redelivery of DID 305 at the Client Design Review (9/96)

- **Will document the CLS as part of the Release B Formal Track**
- **CDWG details are provided in the CLS Design Issues section**